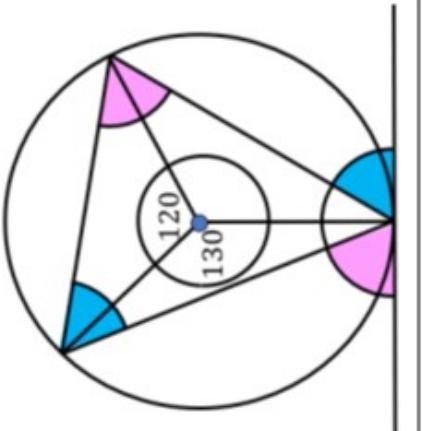
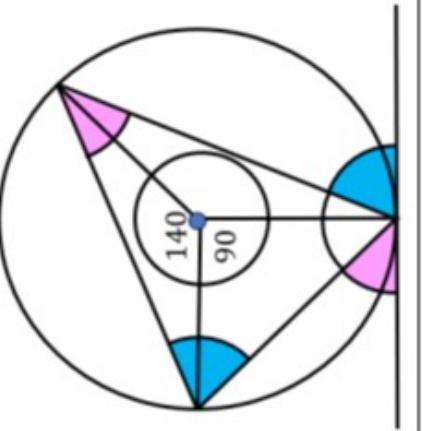
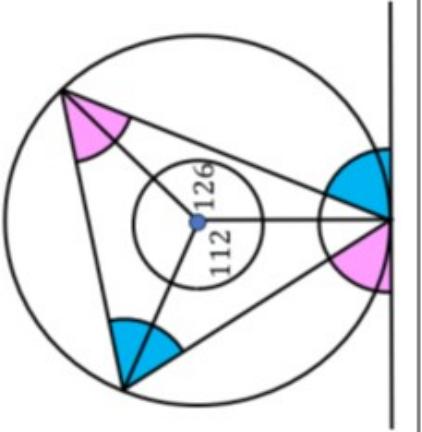
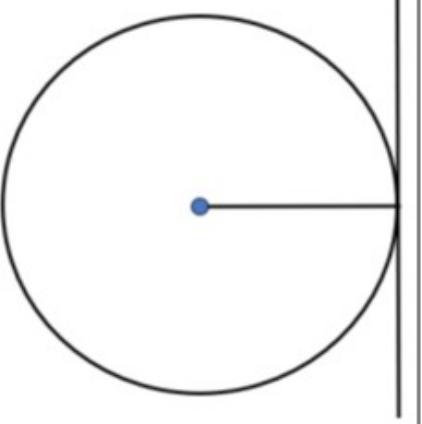


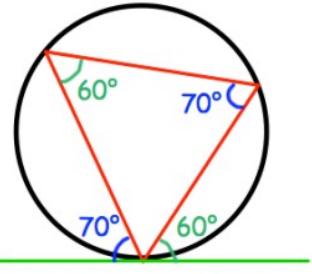
(7) Alternate segment theorem

Do now:

The next three diagrams show three joined isosceles triangles inside a circle with a tangent. Calculate all marked angles and write down what you notice about the shaded angles. In the final diagram, choose your own angles and test your theory.



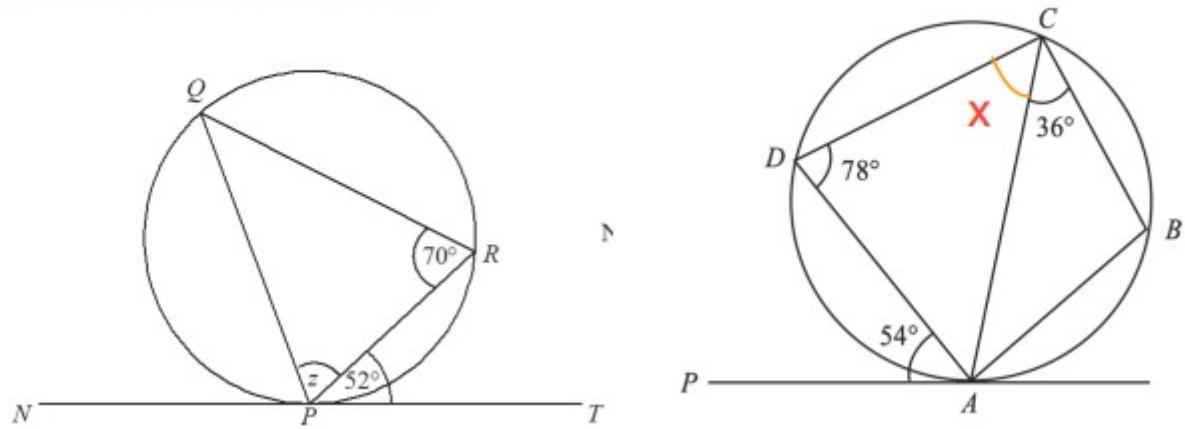
What did you notice?



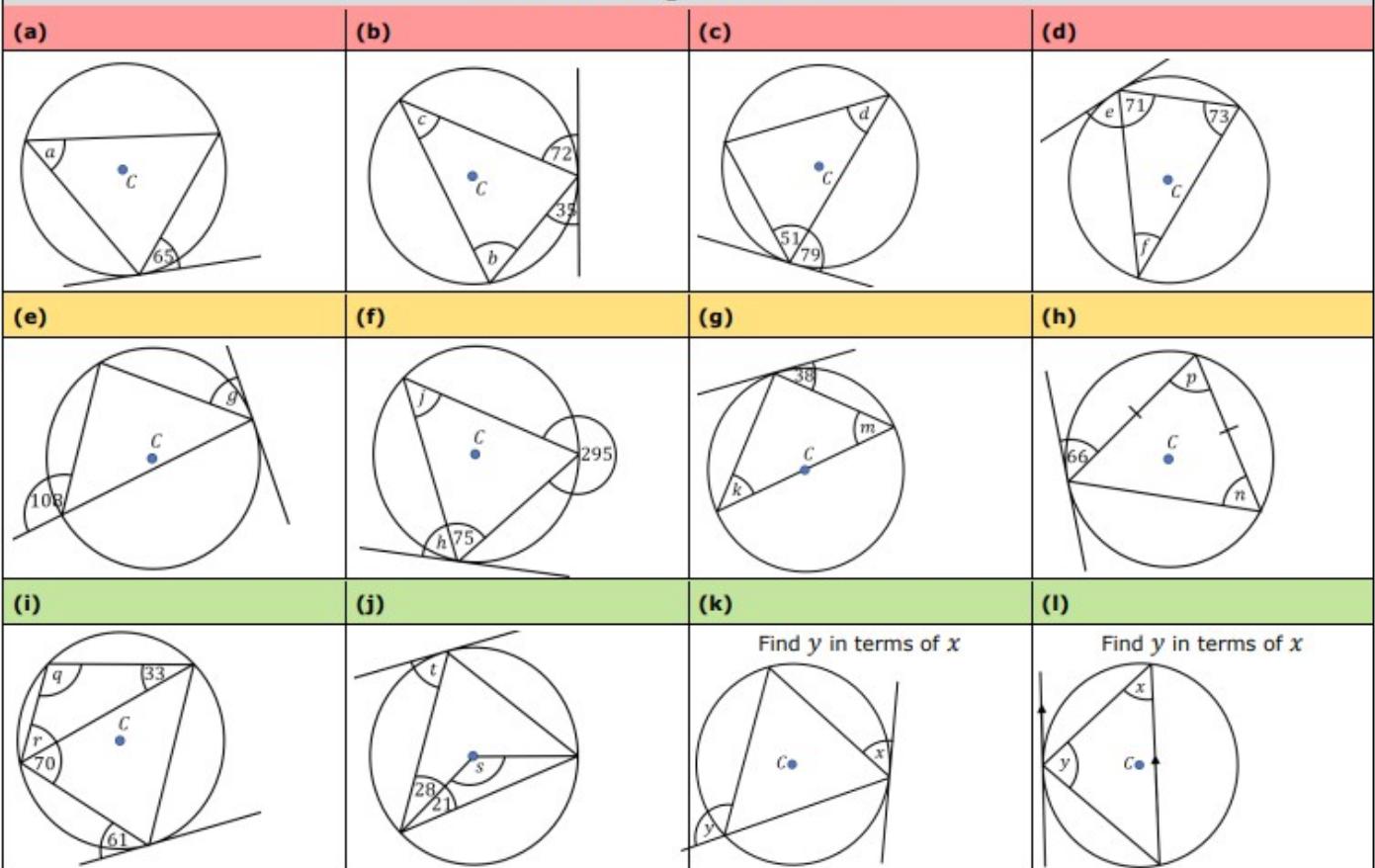
Alternate segment theorem

The angle between the chord and the tangent is equal to opposite angle inside the triangle.

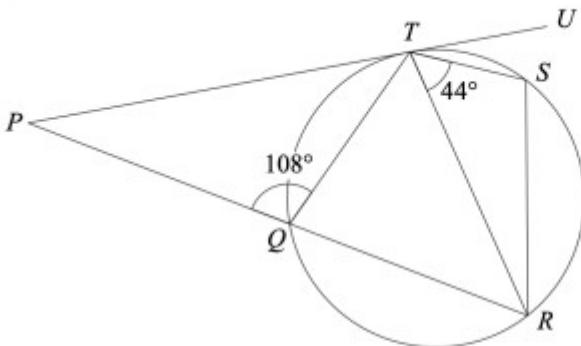
Check your understanding (1)



Alternate Segment Theorem



Exam question



Q, R, S and T are points on the circumference of a circle.

PU is a tangent to the circle at T .

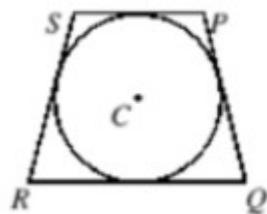
PQR is a straight line.

Angle $PQT = 108^\circ$.

Angle $STR = 44^\circ$.

Work out the size of angle STU .

You must give a reason for each step in your working.



[SMC 2012 Q20] In trapezium $PQRS$, $SR = PQ = 25\text{cm}$ and SP is parallel to RQ . All four sides of $PQRS$ are tangent to a circle with centre C . The area of the trapezium is 600cm^2 . What is the radius of the circle?